## Examination of Male Genitals and Secondary Sexual Characteristics

### Childhood History and Examination

<table>
<thead>
<tr>
<th>Disorders</th>
<th>Risk factor for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undescended testes</td>
<td>Testicular cancer as an infant</td>
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<tr>
<td>Delayed puberty</td>
<td>Androgen deficiency</td>
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<tr>
<td>Gynaecomastia</td>
<td>Androgen deficiency</td>
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<tr>
<td>Past history of testicular cancer</td>
<td>Testicular cancer</td>
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<tr>
<td>Acute testicular-groin pain</td>
<td>Testicular torsion</td>
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<tr>
<td>Testicular pain or lumps</td>
<td>Testicular cancer</td>
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</tbody>
</table>

### Adolescent History and Examination

<table>
<thead>
<tr>
<th>History</th>
<th>Testicular examination</th>
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<tbody>
<tr>
<td>Undescended testes</td>
<td>Testicular volume:</td>
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<tr>
<td>Increased risk of testicular cancer</td>
<td>- Normal childhood (pre-pubertal) range of testicular volume is ≤ 3 mL.</td>
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<td>Associated with inguinal hernia</td>
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<td>Pubertal development</td>
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<td>Testicular trauma, lump, cancer</td>
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<tr>
<td>Gynaecomastia</td>
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<tr>
<td>Prior inguinal-scrotal surgery or hypospadias</td>
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### Penile Examination

- Hypospadias
- Micropenis

### Examination of Secondary Sexual Characteristics

- Gynaecomastia: excessive and/or persistent breast development
- Delayed puberty (average onset is 12-13 years). Indicators:
  - Short stature compared to family, with reduced growth velocity
  - Absent, slow or delayed genital and body hair development compared to peers
  - Anxiety, depression, school refusal, or behaviour change in school years 8-10 (age 14-16 years)
### Puberty: delayed onset or poor progression

**Presentation**
- Short stature compared to family
- Absent, slow or delayed genital development
- Anxiety, depression, school refusal, behaviour change

(±) Other features:
- Headache/visual change (CNS lesions)
- Inability to smell (Kallmann’s syndrome)
- Behavioural or learning difficulty (47XXY)
- Unusual features (rare syndromes)

**Primary Investigations**
- Growth chart in context of mid parental expectation (velocity, absolute height)
- Penile size (standard growth chart)
- Testicular volume (> 4 mL: puberty imminent)
- Bone age

**Specific Investigations**
- LH/FSH (may be undetectable in early puberty, but if raised can be useful)
- Total testosterone level (rises with onset of puberty)
- Karyotype (if suspicion of 47XXY)

**General Investigations**
- U&E, FBE & ESR, coeliac screen, TFT

**Treatment and specialist referral**
- If all normal for prepubertal age, observe for 6 months
- Refer to paediatric endocrinologist if patient is >14.5 years without pubertal onset and/or a specific abnormality

**Clinical notes:**
Precocious puberty (very rare) is indicated by premature/early onset of pubic hair and testes > 4 mL before 10 years. Refer to paediatric endocrinologist.

### Testicular mass

**Presentation**
- Painless lump
- Self report, incidental
- Past history undescended testes (cancer risk)
- Consider possibility of epididymal cyst

**Primary investigations**
- Testicular ultrasound

**Treatment and specialist referral**
- Refer to uro-oncologist
- Offer pre-treatment sperm cryostorage

**Penile abnormality**

**Presentation**
- Hypospadias
- Micropenis
- Phimosis

**Treatment and specialist referral**
- Refer to urologist for investigation and treatment plan
- Refer to paediatric endocrinologist for investigation of micropenis

### Gynaecomastia

**Presentation in adolescence**
- Excessive and/or persistent breast development
- More prominent in obesity
- Often normal, resolves over months

**Rare secondary causes:**
- Hypothalamic pituitary lesions
- Adrenal/testis lesions (oestrogen excess)

**Treatment and specialist referral**
- If persistent or acute onset, refer to paediatric endocrinologist

### Klinefelter’s Syndrome (47XXY)

**Presentation**
- Small firm testes < 4 mL characteristic from mid puberty
- Presentation varies with age, and is often subtle
- Behavioural and learning difficulties
- Gynaecomastia (adolescence)
- Poor pubertal progression (adolescence)

**Investigations**
- Total testosterone level (androgen deficiency)
- LH/FSH level (both elevated)
- Karyotype

**Treatment and specialist referral**
- Refer to paediatric endocrinologist
- Refer for educational and allied health assistance if needed

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